

## EXAM 2 (267)

**Problem 1.** Find a general solution to the ordinary differential equation

$$y'' + 2y' + y = 3e^{-x}\sqrt{x+1}.$$

**Problem 2.** Solve the initial value problem

$$y^{(3)} - y' = 0, \quad y(0) = 3, \quad y'(0) = -1, \quad y''(0) = 1.$$

**Problem 3.** Find a general solution to the ordinary differential equation

$$y^{(6)} + 64y = 0.$$

**Problem 4.** Find a general solution to the ordinary differential equation

$$y'' - 5y' + 4y = 4x^2e^{2x}.$$